

## Thanksgiving Review

Date \_\_\_\_\_ Period \_\_\_\_\_

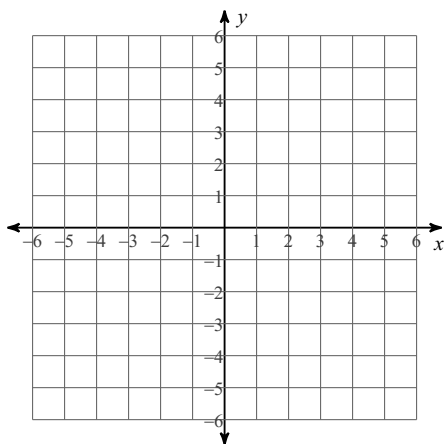
**Module 1****Find the inverse of each function. Then graph the function and its inverse. (1.4)**

1)  $f(x) = -3x - 9$

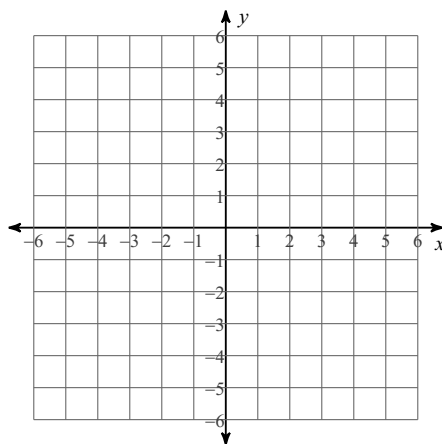
2)  $g(x) = \frac{-15 - 7x}{5}$

**Module 2****Graph each equation.(2.1)**

3)  $y = 2|x - 4| - 1$



4)  $y = -3|x + 1| + 4$

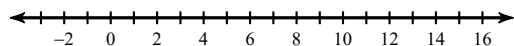
**Solve each equation.(2.2)**

5)  $-|8v - 8| + 5 = 85$

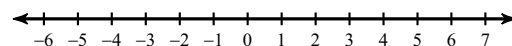
6)  $3|4b - 3| - 7 = 8$

**Solve each inequality and graph its solution.(2.3)**

7)  $8|-p + 6| - 10 \leq 54$



8)  $-6|-5p + 3| + 1 < 73$

**Module 3****Solve each equation by taking square roots.(3.1)**

9)  $6k^2 - 1 = -25$

10)  $3x^2 - 2 = -9$

**Simplify.(3.2)**

11)  $(2 + 5i) - (3 + 7i)$

12)  $(2 + i)(5 + 6i)$

**Solve each equation by completing the square.(3.3)**

13)  $r^2 - 18r - 83 = 5$

14)  $x^2 - 8x + 23 = -2$

**Solve each equation with the quadratic formula.(3.3)**

15)  $m^2 + 2m - 70 = 10$

16)  $8m^2 + 8m - 3 = -9$

Find the discriminant of each quadratic equation then state the number and type of solutions.  
(3.3)

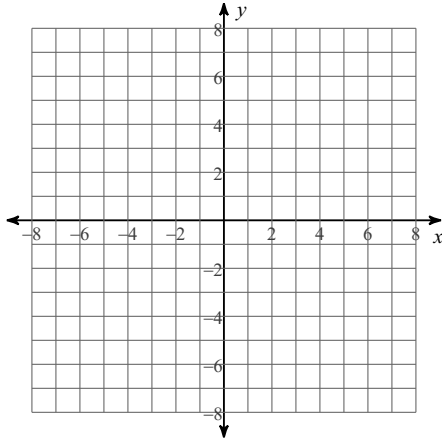
17)  $-3x^2 + 6x - 8 = -5$

18)  $-m^2 - 3m - 6 = -6$

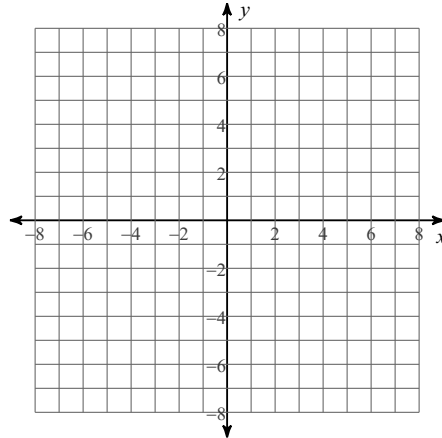
**Module 5**

Graph the following. State the x-intercepts, maximums/minimums and end behavior.(5.2)

19)  $s(x) = -x(x + 2)(x + 1)^2$



20)  $s(x) = x^2(x - 3)(x + 2)(x - 2)$



**Module 6**

Perform the operation (6.1-6.2)

21)  $(4v + 8v^3 + v^4) - (7 - 6v^3 - 3v)$

22)  $(4x + 4)(7x^2 + 4x + 2)$

Expand completely. (6.3)

23)  $(2u + 1)^4$

24)  $(4y - 1)^3$

Factor each completely.(6.4)

25)  $10n^3 - 5n^2 + 2n - 1$

26)  $4a^3 - 24a^2 - 7a + 42$

27)  $-k^2 - 12k - 27$

28)  $5n^2 - 56n + 60$

29)  $10x^2 - 23x - 42$

30)  $6r^2 + 11r - 2$

31)  $3x^3 + 24$

32)  $64 - 27x^3$

Divide. Long division on the first, synthetic division on the second. (6.5)

33)  $(6k^3 - 58k^2 - 24k + 40) \div (k - 10)$

34)  $(10n^3 + 44n^2 - 23n + 35) \div (n + 5)$

**Module 7**

State the possible rational zeros for each function. Then factor each and find all the zeros.(7.1-7.2)

35)  $f(x) = x^3 + 6x^2 + 16x - 64$

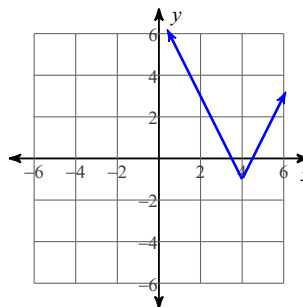
36)  $f(x) = x^3 + 4x^2 + 5x + 2$

## Answers to Thanksgiving Review (ID: 1)

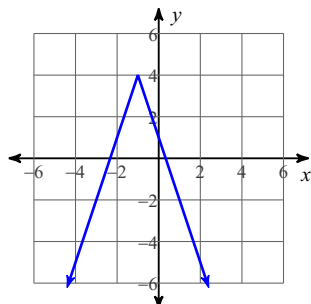
1)  $f^{-1}(x) = -3 - \frac{1}{3}x$

2)  $g^{-1}(x) = \frac{-5x - 15}{7}$

3)



4)



5) No solution.

6)  $\left\{2, -\frac{1}{2}\right\}$

7)  $-2 \leq p \leq 14$  :

8) { All real numbers. } :

9)  $\{2i, -2i\}$

10)  $\left\{\frac{i\sqrt{21}}{3}, -\frac{i\sqrt{21}}{3}\right\}$

11)  $-1 - 2i$

12)  $4 + 17i$

13)  $\{22, -4\}$

14)  $\{4 + 3i, 4 - 3i\}$

15)  $\{8, -10\}$

16)  $\left\{\frac{-1 + i\sqrt{2}}{2}, \frac{-1 - i\sqrt{2}}{2}\right\}$

17) 0; one real solution

18) 9; two real solutions

19)

20)

21)  $v^4 + 14v^3 + 7v - 7$

22)  $28x^3 + 44x^2 + 24x + 8$

23)  $16u^4 + 32u^3 + 24u^2 + 8u + 1$

24)  $64y^3 - 48y^2 + 12y - 1$

25)  $(5n^2 + 1)(2n - 1)$

26)  $(4a^2 - 7)(a - 6)$

27)  $-(k + 3)(k + 9)$

28)  $(5n - 6)(n - 10)$

29)  $(2x - 7)(5x + 6)$

30)  $(r + 2)(6r - 1)$

31)  $3(x + 2)(x^2 - 2x + 4)$

32)  $(4 - 3x)(16 + 12x + 9x^2)$

33)  $6k^2 + 2k - 4$

34)  $10n^2 - 6n + 7$

35) Possible rational zeros:

$\pm 1, \pm 2, \pm 4, \pm 8, \pm 16, \pm 32, \pm 64$

Factors to:  $f(x) = (x - 2)(x^2 + 8x + 32)$

Rational zeros:  $\{2\}$

36) Possible rational zeros:  $\pm 1, \pm 2$

Factors to:  $f(x) = (x + 1)^2(x + 2)$

Rational zeros:  $\{-1 \text{ mult. } 2, -2\}$